

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003181**Date Inspected:** 02-Jul-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1000**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1800**Contractor:** Japan Steel Works**Location:** Muroran, Japan**CWI Name:** Kuan Chung**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower,Jacking and Deviation Saddle**Summary of Items Observed:**

The following report is based on METS observations at Japan Steel Works (JSW) in Muroran Japan. Current work: Casting, machining and repair of Saddles.

Fabrication Shop # 4

On this date, the QA representative Dong J, Shin arrived at Japan Steel Works (JSW) of Muroran, Japan and traveled to JSW fabrication shop # 4. The QA Inspector observed Mr. K. Kobayashi(A Shift), Mr. M. Kashiwada (A Shift), Mr. M. Kobayashi (A shift), Mr. S. Watanabe (B shift) and Mr. M. Kato (B shift) welding on W2-E1 weld joint E1Y-5V, 6V and E1Y-3, fill pass (90%-100%) of rib plate to base plate and stem plate. The welding of the rib plate to stem plate and base plate second side, FCAW welding was performed utilizing the Gas Shielded Flux Core Arc Welding (FCAW) process per the welding procedure specification (WPS) SJ-3011-2 and 3. The welding was performed in the 1G (Flat) position. The filler metal utilized was identified as 1.6 mm diameter, Class TM 95K2, Brand name Tri Mark. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The minimum preheat temperature of 118 degrees Celsius and maximum inter pass temperature of 260 degrees Celsius was verified to meet the WPS requirements by Mr. Kuan and the QA inspector utilizing Tempilstik temperature indicators. This data was entered into the QC inspector's daily log, identifying the location on a weld map. The FCAW welding average amperage and voltage by clamp type meter and travel speed were verified to be within the welding procedure specification parameter range of 311 amps to 355 amps, 34 volts to 37 volts, gas flow was 25 little/min and travel speed of 254 to 310 mm per minute for the 1.6mm wire. The welding was continued to night shift. Visually, general welding appears to meet the minimum requirements of the welding procedure specification and

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contract documents.

MECHANICAL TEST WITNESS

The QA inspector observed two Reduced Section Tensile tests for each test plate in accordance with AWS D1.5-2002 Section 5.18.1 and one all weld metal tensile test in accordance with AWS D1.5-2002 Section 5.18.4. The test machine utilized. Shimazu 1000kn model, serial number I22104400055 calibration was verified to be due 05-15-2009. JSW QC personnel Mr. Naoya Takahashi verified the specimen dimensions and the testing was performed and results recorded as follows.

TENSILE TEST (SW6-1)

Test Plate SW6-1, sample B1-1, 543MPa tensile, failure was in the weld metal, sample B1-2, 545MPa tensile, failure was in the weld metal and sample B2-1 (all weld metal), 530Mpa tensile strength. The samples were found acceptable in accordance with paragraph 5.19.1.

SIDE BEND TEST (SW6-1)

The QA inspector observed four each Side Bend tests for test plates SW6-1 accordance with AWS D1.5-2002 paragraph 5.18.3. JSW QC personnel Mr. Naoya Takahashi performed tests and recorded results as acceptable in accordance with paragraph 5.19.2.

CHARPY V NOTCH TEST (SW6-1)

The QA inspector observed five each Charpy V Notch samples test temperature at -20 C, average test value was 169 joules, and five each Charpy V Notch samples test temperature at -4 C, average test value was 140 joules for test plate SW6-1. The samples were found to be acceptable in accordance with paragraph 5.19.5.

MACRO ETCH TEST (SW6-1)

The QA inspector observed three Macro Etch Test specimen which had been etched in accordance with AWS D1.5-2002 paragraph 5.18.2. The samples were found to be acceptable in accordance with paragraph 5.19.3. Caltrans witness lot number B85-009-08 was assigned to test plate SW6-1 for tracking purposes.

TENSILE TEST (SW6-2)

Test Plate SW6-2, sample B1-1, 552MPa tensile, failure was in the weld metal, sample B1-2, 546 MPa tensile, failure was in the weld metal and sample B2-1(all weld metal), 555 Mpa tensile strength. The samples were found acceptable in accordance with paragraph 5.19.1.

SIDE BEND TEST (SW6-2)

The QA inspector observed four each Side Bend tests for test plates SW6-2 accordance with AWS D1.5-2002 paragraph 5.18.3. JSW QC personnel Mr. Naoya Takahashi performed tests and recorded results as acceptable in accordance with paragraph 5.19.2.

CHARPY V NOTCH TEST (SW6-2)

The QA inspector observed five each Charpy V Notch samples test temperature at -20 C, average test value was 157 joules, and five each Charpy V Notch samples test temperature at -4 C, average test value was 103 joules for test plate SW6-2. The samples were found to be acceptable in accordance with paragraph 5.19.5.

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MACRO ETCH TEST (SW6-2)

The QA inspector observed three Macro Etch Test specimen which had been etched in accordance with AWS D1.5-2002 paragraph 5.18.2. The samples were found to be acceptable in accordance with paragraph 5.19.3. Caltrans witness lot number B85-010-08 was assigned to test plate SW6-2 for tracking purposes.

Summary of Conversations:

No specific conversations.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Venkatesh Iyer, (858) 967-6363, who represents the Office of Structural Materials for your project.

Inspected By:	Shin,DJ	Quality Assurance Inspector
Reviewed By:	Lanz,Joe	QA Reviewer
